

54-1

Submit an original and one copy. Submit an additional copy if the originating office desires an audited copy of the voucher returned.

TELEPHONE EXT  
X - 3031

TRAVEL ORDER NUMBER OR AUTHORITY FOR TRAVEL

TSS 242-56

THIS SPACE FOR FINANCE USE ONLY

VOUCHER NO.

**TOTAL CLAIMED**

LESS ADJUSTMENTS:

### PAYMENT INSTRUCTIONS:

**AUDITED BY**

NET APPROVED  
CREDIT TO ADVANCE  
ACCOUNT

**NET TO PAYEE**

TRAVELER NOTIFIED  
THIS BALANCE DUE

**CERTIFIED FOR PAYMENT OR CREDIT**

DATE	AUTHORIZED CERTIFYING OFFICER
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C/SES/Adm n

DATE	SIGNATURE OF AUTHORIZING OFFICER
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[illegible]

11 January 1956

MEMORANDUM FOR: CONTROLLER

ATTENTION : Finance Division

SUBJECT : HXJLRA Subproject 54

Under the authority granted in the Memorandum dated 13 April 1953 from the DCI to the DS/S, and the extension of this authority in subsequent memoranda, Subproject 54 has been approved, and \$24,000.00 of the over-all Project HXJLRA funds has been obligated to cover the subproject's expenses and should be charged to Allotment 6-2502-10-001.

SIDNEY COSTELLO  
Chief  
TSS/Chemical Division

APPROVED FOR  
OBLIGATION OF FUNDS:

Research Director

Date:

Distribution:

Orig & 2 - Addressee

- 1 - TSS/OC
- 1 - TSS/FASB
- 1 - TSS/SRB
- 2 - TSS/CD

(A) TSS/CD (11 January 1956)

10 January 1956

MEMORANDUM FOR: THE DIRECTOR

SUBJECT: The Conversion of Project [REDACTED] from [REDACTED] (H) (B)  
Cover to INULTRA

B The first year's work on this program was financed through the [REDACTED] for several reasons: First, the work program at that time chiefly involved theoretical studies and the development of tools and models which presented no security hazard and involved no specific product other than unclassified information. Second, Mr. [REDACTED] was not cleared, had to be dealt with through a cut-out, and could not be informed of our true interest. Finally, previous [REDACTED] commitments on protective gear made it entirely logical to proceed for a time under an unclassified [REDACTED] contract as cover.

B 2. When Mr. [REDACTED] was cleared and informed of our true interests in this research, the whole scope of the project changed and it became apparent that developments might be expected in the second year which would make it impossible to operate the program securely under the previous cover. Specifically, human experiments of a type not easily justifiable on medical-therapeutic grounds would be involved. In addition, certain items of equipment are likely to be developed which according to Dr. [REDACTED] of [REDACTED] could not be covertly handled under the present [REDACTED] arrangement. It was Dr. [REDACTED]'s general opinion that unless we were willing to clear a considerable number of people in the [REDACTED] Branch of [REDACTED] and to accept a lower order of security assessment of the project than we feel is necessary, [REDACTED] would not be able to handle the project satisfactorily.

3. For the reasons given above and because this project in a general way will begin to become involved in the subjects of interrogation and some aspects of brain-washing, TSS/CS has decided that it should be funded through project KICKER rather than by less secure methods.

(A)

[REDACTED]  
TSS/Chemical Division

Distribution:  
Orig - 1 - TSS/CS  
1 - Chrono

(A) TSS/CS [REDACTED] (10 January 1956)

WARNING NOTICE

[REDACTED]  
[REDACTED]

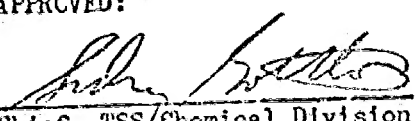
Classified to: CONFIDENTIAL  
EXEMPTED BY 187475  
EXEMPTED BY 187475

54-4  
DRAFT: [redacted]  
January 1956

MEMORANDUM FOR: THE RECORD

SUBJECT: MKULTRA Subproject 54

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1. The purpose of Subproject 54 is to continue work on the mechanism of brain concussion. Mr. [redacted] has recently completed a preliminary study under a [redacted] contract.
  2. The scope of the research program will be to pursue studies on the resonance-cavitation theory of brain concussion using a fluid filled glass simulated skull. In addition to the above, extensive cadaver impact experiments will be carried out for possible correlation with the above theory. For a more detailed explanation of the scope of the program see the attached proposal.
  3. The cost of this program is estimated to be \$60,000 for a period of one year starting 1 February 1956. To this sum must be added \$2,400 representing a four percent service charge to the [redacted]. Therefore, the total cost will not exceed \$62,400. Charges should be made against Allotment 6-2502-10-001.
  - B, B  
B 4. The [redacted] has requested the [redacted] to submit to it a summary accounting of monies received from the [redacted].
  5. Upon termination of the project or withdrawal of financial support by the sponsor, disposal of permanent equipment shall follow the schedule (Para. a-e) under "Proposed Budget", set forth in the attached proposal.
  - B  
B 6. It was mutually agreed that documentation and accounting for travel expenses which are reimbursable by the [redacted] shall conform with the accepted practices of that corporation.
  - B 7. Mr. [redacted] agreed to comply with the requirements of the Memorandum of Agreement.

A  
A [redacted]  
TSS/Chemical Division  
APPROVED:  
  
Chief, TSS/Chemical Division

APPROVED FOR OBLIGATION  
OF FUNDS:

Research Director

Date: \_\_\_\_\_

Attachment:  
Proposal

Distribution:  
Original Only

Declassified to: CONFIDENTIAL  
EXEMPTED BY 187475  
EXEMPTED BY 187475

54-4

**TRANSMITTAL SLIP**

27 Dec

Date \_\_\_\_\_

103

## BUILDING

ROOM NO.

## REMARKS:

This looks like what we want to me. I think that I should prepare a statement for ~~the~~ of the possible applications as he requested & that it should be financed ultra-wise. I would like to see appropriate comments.

FROM:

**BUILDING**

ROOM NO.

## EXTENSION

FORM NO. 36-8  
SEP 1945

54-4

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SID

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PROPOSAL

16 December 1955

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~~SENSITIVE INTELLIGENCE~~

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SUBJECT: Request for Support of Research on the Mechanism of Brain Concussion

1. This is a request for financial support for research on the mechanism of brain concussion for the period 1 Feb 1956 to 1 Feb 1957.
- B 2. The resonance-cavitation theory upon which this research is to be based has been presented in the proposal submitted to the [REDACTED] dated 27 March 1954.
3. The program as originally submitted estimated the duration of the program to be from three to five years requesting a total of \$72,109 for the initial year.
- B 4. At the request of the [REDACTED] a reduced budget was submitted.
- B 5. [REDACTED], amounting to \$24,925, was then awarded to the [REDACTED] to support this program from 1 Feb 1955 to 1 Feb 1956.
6. The progress made to date under the above contract can be summarized as follows:

A. RESEARCH FACILITIES

The following research facilities have been established for the investigation of the very diverse aspects of the problems being studied:

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- a. [REDACTED]  
A total of 2500 square feet of laboratory and office space equipped with much of the diversified machinery and apparatus necessary for research in this field.

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- b. Blast Range  
A blast range has been established at [REDACTED] located approximately [REDACTED] of the main laboratory. This area is owned by the [REDACTED] and is closed to the public. Three blast test-series have been run to date.

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- c. [REDACTED]  
Arrangements have been made with the [REDACTED] for use of their human cadavers. A test area has been assigned for this

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SENSITIVE INTELLIGENCE

CHARACTERISTICS AND METHODS INVOLVED

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C specific work. Impact tests have been conducted on three cadavers to date. This work is being conducted under the direction of Dr. [REDACTED]

#### B. PERSONNEL

Both full-time technical personnel and part-time professional research personnel have been acquired and indoctrinated relative to their specific function.

#### C. TECHNICAL PROGRESS

B Following is the technical progress made under the current [REDACTED] contract:

- a. Specialized instrumentation and numerous testing techniques have been developed to obtain the desired dynamic data.
  - b. Considerable data has now been obtained supporting the resonance-cavitation theory of brain concussion.
  - c. Preliminary acceleration threshold data has been obtained for a fluid-filled glass simulated skull.
  - d. Data has been obtained on the nature and the magnitude of pressure fluctuations within a glass simulated skull subject to either impact or sound waves propagated in air.
  - e. Initial studies have been made on the simulated glass skull attempting to establish the cavitation patterns for various types of impact.
7. The proposed method and program plan remain the same as stated in the original proposal, except for the temporary deletion of the immersion blast study.
  - B 8. The current level of activity on this project can be indicated by the most recent billing to the [REDACTED] for the month of November, which amounted to \$4,034.61.
  9. In the interest of efficiency and economy it is requested that at least this level of activity be maintained for the coming year.

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10.0 POTENTIAL APPLICATIONS OF THE RESEARCH FINDINGS

- 10.1 Trotter, W. defines brain concussion as: "an essentially transient state due to head injury which is of instantaneous onset, manifests widespread symptoms of purely paralytic kind, does not as such comprise any evidence of structural cerebral injury, and is always followed by amnesia for the actual moment of the accident."
- 10.2 The implication of the underlined portion of the above statement is that if a technique were devised to induce brain concussion without giving either advance warning or causing external physical trauma, the person upon recovery would be unable to recall what had happened to him. Under these conditions the same technique of producing the concussion could be re-used many times without disclosure of its nature.
- 10.3 First, considering the possibilities of direct impact to the head or body, it should be possible from the findings of this research program to determine the following:
- a. Optimum design of impacting devices.
  - b. Optimum points of impact on skull or body for the specific effects desired.
  - c. Intensity of the blow for the effect desired.
- 10.4 In regard to the potential impacting devices, there are certain design requisites that are apparent at this time:
- a. The impact should be delivered without advance warning.
  - b. The area of impact and force distribution should be such that surface trauma does not occur.
  - c. The intensity of the impacting force and its duration should be such as to obtain the desired effect.
  - d. The device should be as small and as silent as possible.
- 10.5 The specific impacting devices might take the form of any of the following:
- a. A pancake type black-jack giving a high peak impact force with a low unit surface pressure.
  - b. Concealed or camouflaged spring-loaded impacting devices that trigger upon contact with the head.

(Original and sole copy :agg)

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~~SENSITIVE INTELLIGENCE~~  
~~SOURCES AND METHODS INVOLVED~~

- c. A projectile type impactor such as an air gun using a small shot filled sack for a projectile.
- d. An explosive pad detonated in contact with the head or the body.

10.6 Let us now consider the possibilities of exciting the resonance cavitation directly without impact. There is considerable evidence that resonance cavitation can be induced directly in the following ways:

- a. A blast wave propagated in air. (Blast Concussion)
- b. Physical excitation with a mechanical driver or horn, tuned to the resonant frequency of the head.

10.7 A single blast pressure wave propagated in air must have considerable intensity in order to produce brain concussion, however, there is considerable evidence (Carver & Dinsley) that modification of the pressure wave can produce profound effects.

10.8 Excitation of the resonance cavitation by using a tuned driver at this time appears to be well within the realm of possibility. The neurotic-like manifestations normally associated with blast concussion could possibly be induced by this method. Use of this method, however, would require actual physical contact with the drivers.

10.9 Excitation of the resonance cavitation by tuned sound waves also appears to be a reasonable possibility. Concentration of the sound-field at some remote point could be effected with acoustical lenses and reflectors. The blast duration would be in the order of a tenth of a second. Masking of a noise of this duration should not be too difficult.

11.0 It would possibly be advantageous to establish the effectiveness of both of the above methods as a tool in brain-wash therapy. A full knowledge of the method and the resulting sequela should be of aid to any person forced to submit to such treatment.

12.0 Possibly the most significant potential aspect of this study would be in the development of practical means of giving a person immunity, even though temporary, to brain concussion. One technique that appears to have potentialities involves the introduction of a small quantity of gas, approximately 1 cc, into the spinal cord. This gas bubble would then normally migrate to the ventricles located at the centrum of the brain. The ability of this bubble to expand under dynamic loading would be most effective in preventing resonance cavitation from occurring.

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~~SOURCES AND METHODS INVOLVED~~

# PROPOSED BUDGET

(1 Feb 1956 to 1 Feb 1957)

Direct Labor	\$23,594
Materials	4,000
Overhead (83.21% of \$23,594)*	19,633
Travel	800
Consultant Fees	1,000
Laboratory Equipment**	10,000
Contingencies	973
Total	\$60,000

\* See attached letter for breakdown.

\*\* In regard to the laboratory equipment the following stipulations are proposed:

- The laboratory equipment will be purchased by the contractor at the start of the years program, however, the sponsor will remain legal owner of the equipment.
- The book value of the above equipment will then be depreciated over a five year period by the sum of the digits method. The schedule of depreciation will then be as follows:
 

1st year =	5/15	original cost
2nd year =	4/15	" "
3rd year =	3/15	" "
4th year =	2/15	" "
5th year =	1/15	" "
- If at any time the sponsor withdraws financial support, the contractor is then to be granted 1 year rent-free use of the equipment.
- At the end of this grace period the contractor has then the option of purchase from the sponsor of any or all items of equipment at the then depreciated value.
- At the end of the five years of life the individual items of equipment have no book value and automatically become the property of the contractor.

PROPOSED SCHEDULE OF PAYMENT

1 Feb 1956	\$22,500
1 May 1956	12,500
1 Aug 1956	12,500
1 Nov 1956	12,500
Total	\$60,000

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Director of Research

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December 16, 1955

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Attention: Mr. [REDACTED]

Gentlemen:

Pursuant to our telephone conversation of December 15, 1955, we have computed the estimated burden rate applicable to your research contracts for the fiscal year ending September 30, 1956.

The estimated overhead for the fiscal year ending September 30, 1956, based upon the corporation's experience for the period from June 1, 1955, to September 30, 1955, certain actual expenses for the month of November, 1955, and additional estimated expenses as furnished by Mr. [REDACTED] is comprised as follows:

Utilities	\$ 360
Shop Supplies and Expense	1,500
Reproduction Costs	300
Repairs and Maintenance	360
Depreciation, Research Equipment	3,996
Depreciation, Technical Library	96
Depreciation, Office Furniture and Fixtures	324
Officers' Salaries, Administrative	1,958
Office Salaries, Secretarial	4,080
Vacation and Holiday Pay	1,275
Payroll Taxes	1,024
Amortization of Leasehold Improvements	648
Postage, Stationery and Office Supplies	930
Telephone and Telegraph	1,116
Rent	3,100
Insurance, General	420
Insurance, Workmans Compensation	492
Legal and Accounting	1,800

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SENSITIVE INTELLIGENCE

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Taxes, Licenses and Permits	324
Dues and Subscriptions	48
Automobile Expense	600
Depreciation, Automotive Equipment	336
Proposal Costs	240
Other General and Administrative Expenses	800
<b>Total Estimated Overhead</b>	<b><u>\$26,177</u></b>

The total estimated direct labor for the fiscal year ending September 30, 1956, is \$31,459, based upon the productive hours and the personnel during the month of November, 1955. The estimated burden rate is based upon the assumption that the present personnel will continue substantially unchanged throughout the year. Any increase or decrease in direct labor would affect the burden rate.

The estimated overall burden rate, which would be allocable to all direct labor costs, is 83.21 percent, computed by dividing the total estimated overhead, \$26,177, by the estimated direct labor, \$31,459.

The estimated costs for the fiscal year ending September 30, 1956, on government contracts being negotiated at this time, based on the premise that 75 percent of the research work will be on these contracts, are as follows:

Direct Labor (75% of \$31,459)	\$23,594
Materials	4,000
Burden (83.21% of \$23,594)	19,633
Costs applicable to government contracts only:	

Travel	\$ 800
Consultant Fees	1,000
Contingencies	973
	<u>2,773</u>

<b>Total Cost of Government Contracts</b>	<b><u>\$50,000</u></b>
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Very truly yours,

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WARNING NOTICE

SENSITIVE INTELLIGENCE  
MATTERS AND METHODS INVOLVED

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34-6

Submit an original and one copy. Submit an additional copy if the originating office desires an audited copy of the voucher returned.

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**FUNDS AND TRANSPORTATION TICKETS ADVANCED TO TRAVELER**

DATE	SOURCE	AMOUNT OF FOREIGN CURRENCY	RATE TO U. S. \$	U. S. \$ AMOUNT
11 <sup>th</sup> 55 Dec	B [REDACTED] / Finance			\$400.00
TOTAL				\$400.00

**TRANSPORTATION AND EXCHANGE ORDERS, BOTH USED AND NOT USED (Attach receipts, stubs, and unused items)**

INCLUSIVE DATES	MODE OF TRAVEL*	POINTS OF TRAVEL		COST
		FROM	TO	
11 December 1955 14 December 1955	B [REDACTED]	[REDACTED]	[REDACTED]	\$253.89
TICKET STUB ATTACHED				
TOTAL				\$253.89

\*Show initials of common carrier, name of vessel, class of service used, etc.

**SCHEDULE OF EXPENSES AND ITINERARY OF TRAVELER**

DATE	DESCRIPTION OF EXPENDITURE AND DETAIL OF ITINERARY (Deduct 1/4 from the applicable per diem for each meal and lodging furnished without charge)	AMOUNT CLAIMED	
		PER DIEM	OTHER
11 Dec (B) 0325	Taxi residence to Airport [REDACTED]		2.55
(B) 1920	Arr [REDACTED]		
	Liaising Airport to hotel 3/4 day per diem @ \$12.00	9.00	1.50
12-13-14 Dec	Consultation 3 days per diem @ \$12.00	36.00	
14 Dec (B) 2145	Liaising hotel to Airport [REDACTED]		1.50
15 Dec (B) 0530	Ar [REDACTED] 1/4 day per diem @ \$12.00 Taxi Airport to residence	3.00	2.55
TOTALS		48.00	8.70

CHECK ONE:

☒ TOTALS

TOTALS

☐ CARRIED FORWARD

USE CONTINUATION SHEET FORM NO. 22a, IF ADDITIONAL SPACE IS REQUIRED



54-7A

DATE 6 December 1955

## 附录

DOLLARS \$ 400.00

For travel in connection with special

RAD projects for TSS/CU

TSS 242-56

6-2507-10

APPROVED PROJECT, ALLOTMENTS, ETC

(A) WITHIN 30 DAYS, ACCOUNTING AND/OR REFUND WILL BE MADE TO CHIEF, CONFIDENTIAL FUNDS.

REPRESENTATIVE AT

9. [REDACTED]

REQUESTING OFFICER

AC/TSS/N&D

DATE \_\_\_\_\_

**TITLE**

**SIGNATURE**

DATE \_\_\_\_\_

### APPROPRIATION

## ALLOTMENT

**CERTIFYING OFFICER**

400.00

FOR THE PURPOSE STATED, AND WILL BE ACCOUNTED FOR FULLY BY ME IN ACCORDANCE WITH PARAGRAPH 4 ABOVE.

DATE \_\_\_\_\_

**SIGNATURE**

